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General Electric Company
GE Global Patent Operation
2 Corporate Drive, Suite 648
Shelton, CT 06484

EXAMINER	
MANCHO, RONNIE M	
ART UNIT	PAPER NUMBER
3664	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gpo.mail@ge.com
allyson.carnaroli@ge.com

Office Action Summary	Application No.	Applicant(s)	
	10/736,089	KUMAR ET AL.	
	Examiner	Art Unit	
	RONNIE MANCHO	3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 August 2009 and 04 February 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,8,14-16,18-22,26,50,52-58,62 and 76* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3, 8, 14-16, 18-22, 26, 50, 52-58, 62, and 76* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Remark

1. The present office action has been re-opened in view of new found art to more explicitly explain the invention. Any inconvenience to applicant is regretted.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 14-16, 18-22, 26, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites "the railroad infrastructure". The claimed phrase lacks antecedent basis. The rest of the claims are rejected for depending on claim 14.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3, 8, 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swenson et al (5420883) and Root et al (7073753) and further in view of Schick et al (US 20020065698).

Regarding claim 1 Swenson et al (5420883) discloses a system for management of a multi-level railway system having a railroad infrastructure, a railroad track network, a train, a consist of the train and a locomotive of the consist and operational components of said locomotive (figs. 1-4, abstract; col. 4, line 51 to col. 5, line 53), the railway system comprising:

a first processor 80 associated with a railroad infrastructure level configured to control an operation of the railroad infrastructure, said railroad infrastructure including servicing operations (col. 4, line 51 to col. 5, line 50);

a second processor 62 (col. 4, line 51 to col. 5, line 53) associated with a railroad track network level configured to control an operation of the railroad track network, wherein the railroad track network level is a sub-level of said railroad infrastructure level;

a third processor (80, 82; col. 4, line 51 to col. 5, line 53) associated with a train level configured to control an operation of the train, wherein the train level is a sub-level of said railroad track network level;

a fourth processor 72 (col. 4, line 51 to col. 5, line 53) associated with a consist level configured to control an operation of the consist, wherein the consist level is a sub-level of said train level;

said first processor 80 (col. 4, line 51 to col. 5, line 53) generating service plan data provided to at least one other processor of the system, said first processor 80 responsive to generated data generated by at least one other processor of the system (col. 4, line 51 to col. 5, line 53);

said second processor 62 (col. 4, line 51 to col. 5, line 50) generating train movement plan data provided to at least one other processor of the system, said second processor responsive

to service plan data provided by the first processor to define operational characteristics and performance data for the railroad infrastructure level and to generate output instructions corresponding to the defined operational characteristics and performance data for the railroad infrastructure level, and said second processor 62 controlling the operation of the railroad infrastructure level in accordance with the generated output instructions for the railroad infrastructure level;

said third processor (80, 82; col. 4, line 51 to col. 5, line 50) generating data provided to at least one other processor of the system, said third processor responsive to generated data generated by at least one other processor of the system to define operational characteristics and performance data for the train and to generate output instructions corresponding to the defined operational characteristics and performance data for the train, and said third processor controlling the operation of the train in accordance with the generated output instructions for the train;

said fourth processor 72 (col. 4, line 51 to col. 5, line 50) generating data provided to at least one other processor of the system, said fourth processor responsive to generated data generated by at least one other processor of the system to define operational characteristics and performance data for the consist and to generate output instructions corresponding to the defined operational characteristics and performance data for the consist, and said fourth processor controlling the operation of the consist in accordance with the generated output instructions for the consist.

Swenson et al disclose the invention above, but did not disclose that the processor 72 associated with a consist level has sub-level processor. However, Root et al (figs. 4; col. 4, line

55 to col. 5, line 65, etc) teach a system for management of a multi-level railway system comprising a fifth processor (BC, see fig. 4; col. 4, line 55 to col. 5, line 65, etc) associated with a locomotive level configured to control an operation of a locomotive, wherein the locomotive level (BC) is a sub-level of a consist level (see Wire DP locomotive control level, fig. 4),

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Swenson as taught by Root et al for the purpose of showing detailed control functions of processors within a consist level and a locomotive level.

Therefore Swenson (figs. 1-4, abstract; col. 4, line 51 to col. 5, line 50) in view of Root et al (figs. 4; col. 4, line 55 to col. 5, line 65, etc) disclose said fifth processor (see BC in Root; see fig. 4; col. 4, line 55 to col. 5, line 65, etc in Root) generating data provided to at least one other processor of the system, said fifth processor responsive to generated data generated by at least one other processor of the system to define operational characteristics and performance data for the locomotive and to generate output instructions corresponding to the defined operational characteristics and performance data for the locomotive, and said fifth processor controlling the operation of the locomotive in accordance with the generated output instructions for the locomotive whereby said first, second, third, fourth and fifth processors control operation of the multi-level railway system across the railroad infrastructure level, the railroad track network level, the train level, the consist level, and the locomotive level of the multi-level railway system as a function of the generated data.

Further, Swenson discloses the said first processor 80 generating service plan data provided to other processors 62, 82, 72 of the system, but did not particularly mention that said first processor 80 controls service operations for the railroad infrastructure by issuing work

orders, wherein the work orders comprise at least one of the following: refueling instructions, scheduling work bays, scheduling work crews, scheduling tools, or ordering parts.

However, Schick et al (sec. 0007, 0021, 0022, 0023, 0057, 0058, etc) disclose a system for management of a multi-level railway system, the system comprising:

a first processor 18 generating service plan data provided to at least one other processor of the system 22 (sec. 0023, 0029, 0030, 0031, 0033), said first processor 18 responsive to generated data generated by at least one other processor of the system to define operational characteristics and performance data for the railroad infrastructure and to generate output instructions corresponding to the defined operational characteristics and performance data for the railroad infrastructure, and said first processor controlling the servicing operations of the railroad infrastructure in accordance with the generated output instructions for the railroad infrastructure by issuing work orders to service facilities for implementing the servicing operations, said work orders comprising at least one of the following: refueling instructions, scheduling work bays, scheduling work crews, scheduling tools, or ordering parts (sec. 0057, 0058, etc). As further noted, the drawings and entire disclosure of Schick are combinable as known in the art.

Therefore, it would have been obvious to one having ordinary skill in the art to modify Swenson and Root et al by Schick for the purpose of effectively managing, repairing and maintaining a fleet of locomotives at low cost as taught by Schick.

Regarding claim 3 Swenson (figs. 1-4, abstract; col. 4, line 51 to col. 5, line 50) in view of Root et al (figs. 4; col. 4, line 55 to col. 5, line 65, etc) and Schick (sec. 0007, 0021, 0022,

0023, 0057, 0058, etc) disclose the system of claim 1 wherein the input data received by the first processor associated with the railroad infrastructure level includes:

railroad infrastructure data, wherein said railroad infrastructure data includes characteristics of service facilities of the railroad infrastructure;

railroad track network data; and

train data; and

wherein the first processor controls the operation of the railroad infrastructure within the railroad infrastructure level based on the received infrastructure data, the received railroad track network data, and the received train data.

Regarding claim 8 Swenson (figs. 1-4, abstract; col. 4, line 51 to col. 5, line 50) in view of Root et al (figs. 4; col. 4, line 55 to col. 5, line 65, etc) and Schick (sec. 0007, 0021, 0022, 0023, 0057, 0058, etc) disclose the system of claim 1, wherein the output instructions generated by the first processor associated with the railroad infrastructure includes operating commands, and wherein the data generated by the first processor includes operating commands to the second processor associated with the railroad track network level and commands to the third processor associated with the train level.

Regarding claim 76, Swenson (figs. 1-4, abstract; col. 4, line 51 to col. 5, line 50) in view of Root et al (figs. 4; col. 4, line 55 to col. 5, line 65, etc) and Schick (sec. 0007, 0021, 0022, 0023, 0057, 0058, etc) disclose the system of claim 1, wherein the generated data comprises at least one of: an operating command, an operational limitation, or information associated with the level generating said data.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 14-16, 18-22, 26, 50, 52-58, 62, 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Polivka et al (5828979) in view of Schick et al (US 20020065698).

Regarding claim 14, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64; col. 7, lines 3-67; col. 8, lines 1-67) disclose a multi-level system for management of a railway system and its operational components, the railway system comprising:

a first level (col. 4, lines 39-67; col. 5, lines 1-64) configured to control a servicing operation within the first level, said first level including first level operational parameters defining operational characteristics of service facilities of the railroad infrastructure and data of the first level, said controlling a servicing operation comprising issuing a work order to service facilities for implementing the servicing operations, said work orders comprising at least one of the following: refueling instructions, scheduling work bays, scheduling work crews, scheduling tools, or ordering parts; and

a second level (col. 4, lines 39-67; col. 5, lines 1-64) configured to control an operation within the second level, said second level including second level operational parameters defining the operational characteristic and data of the second level over time, wherein the second level is a sub-level of said first level;

said first level providing the second level with the first level operational parameters (col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64) at regular scheduled intervals, and the second level providing the first level (see signal flow, figs. 2, 4-14) with the second level operational parameters at periodic intervals (col. 7, lines 29-49); and

said controlling the operation within the first level and said controlling the operation within the second level each being a function of both the first and second level operational parameters (col. 4, lines 39-67; col. 5, lines 1-64).

Polivka discloses the first level as mentioned above, but did not particularly mention servicing operation comprising issuing a work order to service facilities for implementing the servicing operations, said work orders comprising at least one of the following: refueling instructions, scheduling work bays, scheduling work crews, scheduling tools, or ordering parts

However, Schick disclose a multi-level system for management of a railway system and its operational components, the railway system comprising:

a first level 18 configured to control a servicing operation within the first level, said first level including first level operational parameters defining operational characteristics of service facilities 22 of a railroad infrastructure and data of the first level, said controlling a servicing operation comprising issuing a work order to service facilities for implementing the servicing operations (sec. 0023, 0029, 0030, 0031, 0033), said work orders comprising at least one of the following: refueling instructions, scheduling work bays, scheduling work crews, scheduling tools, or ordering parts (sec. 0057, 0058, etc). As further noted, the drawings and entire disclosure of Schick are combinable as known in the art.

Therefore, it would have been obvious to one having ordinary skill in the art to modify Polivka et al by Schick for the purpose of effectively managing, repairing and maintaining a fleet of locomotives at low cost as taught by Schick.

Regarding claim 15, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67) in view of Schick disclose the system of claim 14 wherein the first level operational parameter and second level operational parameter are indicative of fuel usage in the railway system.

Regarding claim 16, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67) in view of Schick disclose the system of claim 14 wherein the first level operational parameter and second level operational parameter are indicative of an economic valuation of the time of delivery of cargo carried in the railway system.

Regarding claim 18, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67) in view of Schick et al disclose the system of claim 14 wherein the operational parameters are indicative of predetermined changes in conditions over a period of time (col. 7, lines 29-49).

Regarding claim 19, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67) in view of Schick et al disclose the system of claim 18 wherein the operational parameters are indicative of a rate of change in the conditions.

Regarding claim 20, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64; col. 7, lines 3-67; col. 8, lines 1-67) in view of Schick et al disclose the system of claim 19 wherein the rate of change is with respect to time (col. 7, lines 29-49).

Regarding claim 21, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64; col. 7, lines 3-67; col. 8, lines 1-67) in view of Schick et al disclose the system of

claim 19 wherein the rate of change is the change in one condition with respect to another (col. 7, lines 39-67).

Regarding claim 22, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64; col. 7, lines 3-67; col. 8, lines 1-67) in view of Schick et al disclose the system of claim 14 wherein an operational parameter of the second level relevant to the system optimization parameter is communicated periodically from the second level to the first level for adjusting the first and second level operational parameters based thereon.

Regarding claim 26, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64; col. 7, lines 3-67; col. 8, lines 1-67) in view of Schick et al disclose the system of claim 22 wherein controlling the operation within the first level and controlling the operation within the second level includes identifying operating constraints and data at one of the first and second level and communicating the operating constraints and data to another of the first and second level to improve performance of operation at the another level.

Regarding claim 50, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64; col. 7, lines 3-67; col. 8, lines 1-67) in view of Schick et al disclose a system for management of a railway system and its operational components, the railway system comprising:

a first level (col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64) including first level operational parameters defining operational characteristics of service facilities of the railway system and data of the first level;

a second level (col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64) including second level operational parameters configured to control an operation within the second level as a function of the first level operational parameters and second level operational parameters and

wherein the second level operational parameters are indicative of changes in operational characteristics and data of the second level (col. 7, lines 3-67; col. 8, lines 1-67), wherein the second level is a sub-level of said first level; and

said second level continuously providing the first level with second level operational parameters (see signal exchange, figs. 2, 4-14), and wherein said first level continuously determines the first operational parameters as a function of the provided second level operational parameters..

Polivka mention the said first level as mentioned above, but did not particularly mention that said operational characteristics comprise availability or cost of fuel, work crews, maintenance bays, tools, replacement locomotives, or parts.

However, Schick et al disclose a system for management of a railway system and its operational components, the railway system comprising:

a first level 18 including first level operational parameters defining operational characteristics of service facilities of the railway system and data of the first level, said operational characteristics comprising availability or cost of fuel, work crews, maintenance bays, tools, replacement locomotives, or parts (sec. 0023, 0029, 0030, 0031, 00330057, 0058, etc).

Therefore, it would have been obvious to one having ordinary skill in the art to modify Polivka et al by Schick for the purpose of effectively managing, repairing and maintaining a fleet of locomotives at low cost as taught by Schick.

Regarding claim 52, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64; col. 7, lines 3-67; col. 8, lines 1-67) in view of Schick disclose the system of

claim 51 wherein the first and second level operational parameters are indicative of a change in fuel usage in the railway system.

Regarding claim 53, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64; col. 7, lines 3-67; col. 8, lines 1-67) in view of Schick disclose the system of claim 51 wherein the first and second level operational parameters are indicative of a change in an economic valuation of the time of delivery of cargo carried in the railway system.

Regarding claim 54, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64; col. 7, lines 3-67; col. 8, lines 1-67) in view of Schick disclose the system of claim 50 wherein the second level operational parameters are provided from the second level to the first level at predetermined intervals.

Regarding claim 55, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64; col. 7, lines 3-67; col. 8, lines 1-67) in view of Schick disclose the system of claim 50 wherein the second level is a portion of the first level.

Regarding claim 56, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64; col. 7, lines 3-67; col. 8, lines 1-67) in view of Schick disclose the system of claim 51 wherein the system operational parameter is indicative of a rate of change in second level operational parameters.

Regarding claim 57, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64; col. 7, lines 3-67; col. 8, lines 1-67) in view of Schick disclose the system of claim 56 wherein the rate of change is with respect to time.

Regarding claim 58, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64; col. 7, lines 3-67; col. 8, lines 1-67) in view of Schick disclose the system of claim 56 wherein the rate of change is the change in one condition with respect to another.

Regarding claim 62, Polivka et al (figs. 2, 4-14; col. 4, lines 39-67; col. 5, lines 1-64; col. 6, lines 36-64; col. 7, lines 3-67; col. 8, lines 1-67) in view of Schick disclose the system of claim 50 wherein the first level monitors whether or not the optimized second level operation is within predetermined limits.

Response to Arguments

8. Applicant's arguments with respect to claims 1, 3, 8, 14-16, 18-22, 26, 50, 52-58, 62, and 76 .

Communication

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RONNIE MANCHO whose telephone number is (571)272-6984. The examiner can normally be reached on Mon-Thurs: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tran Khoi can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ronnie Mancho/
Primary Examiner, Art Unit 3664

Ronnie Mancho
Primary Examiner
Art Unit 3664

/Ronnie Mancho/

Examiner, Art Unit 3664